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1. Untranslatable words are replaced with asterisks (****).
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Translated: 00:58:19 JST 02/05/2009

Dictionary: Last updated 12/10/2008 / Priority:

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[Claim(s)]

[Claim 1] The fixed side cavity and movable side cavity which form a desired prism and isomorphous-like space by countering each other in a prism molding die, A plane part which becomes smaller than the prism form for which the space formed by making it counter with either a fixed side cavity or a movable side cavity asks, It is the prism molding die which **** and is characterized by the ability to exchange by sliding a fixed side cavity or a movable side cavity, and a plane part within a metallic mold.

[Claim 2] It is the prism molding die which forms the space for fabricating a desired prism by countering each other in the fixed side cavity arranged to the fixed side template, and the movable side cavity arranged to the movable side template. In the prism molding die which obtains a desired prism by attaching to an injection molding machine and filling up the above-mentioned space with melting resin It is arranged free [a slide into the slot prepared along one of the P.L. sides of a fixed side template or a movable side template]. The insert which prepared the plane part which covers another cavity by slide while preparing the movable side cavity, when it prepared for the case where it prepares for a fixed side template at a fixed side and a movable side template, The prism molding die characterized by having the control device which controls the drive which connected the insert so that an insert might slide along the above-mentioned slot, the heater which is in a movable side template and a fixed side metallic mold, and was embedded near the passage of melting resin, the above-mentioned drive and a heater, and a making machine.

[Claim 3] It is the prism molding die which forms the space for fabricating a desired prism by countering each other in the fixed side cavity arranged to the fixed side template, and the movable side cavity arranged to the movable side template. In the prism molding die which obtains a desired prism by attaching to an injection molding machine and filling up the above-mentioned space with melting resin The insert which has a movable side cavity when it

prepares for the case where it has been arranged free [a slide into the slot prepared along one of the P.L. sides of a fixed side template or a movable side template], and prepares for a fixed side template at a fixed side and a movable side template, While having the plane part which while will accept it with an insert in the side which counters, and covers a cavity The dummy insert with which the slot established in the template of the side equipped with the above-mentioned insert along the opening-and-closing direction of a movable side template was equipped free [a slide], The drive which connected the insert so that an insert might slide along the above-mentioned slot, The prism molding die characterized by having the control device which controls the drive which connected the dummy insert so that a dummy insert might slide along the above-mentioned slot, the heater which is in a fixed side template and a movable side metallic mold, and was embedded near the passage of melting resin, the above-mentioned drive and a heater, and a making machine.

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the structure of a prism molding die.

[0002]

[Description of the Prior Art] As compared with manufacturing a prism by injection molding of a plastic grinding and manufacturing glass, mass-production nature is widely carried out from the good thing. Since [however,] a prism is generally a cast with thick meat There was a problem with which it is easy to generate HIKE at the time of fabrication, and it will be easy to generate a flow mark if injection speed is not made late, since cavity capacity is large, and a plastic is not fully filled up into a part for a DAHA corner unless it already carries out injection speed conversely that cool time was long and this thing to molding time was long. To these problems, [JP,S57-26801,A and JP,S57-26802,A] The insertion member of the size about the half of the desired whole prism is fabricated beforehand, this insertion member is attached to the cavity of a prism molding die, and the method of ejecting resin in the crevice between a cavity and an insertion member is indicated. That is, as compared with the case where a predetermined prism is fabricated at once, thickness in fabrication per time is made into an abbreviation half by fabricating a prism with thick meat in 2 steps. Moreover, to JP,S57-26803,A, the method of ejecting the same resin in 2 steps using the making machine of 2 color fabrication is indicated.

[0003]

[Problem to be solved by the invention] Since such technology all made thickness at the time of one fabrication the half grade of desired thickness by fabricating one prism in 2 steps, it was hard to generate HIKE and a flow mark, and there was an advantage that cool time could also

be shortened. However, in the above-mentioned conventional example, this metallic mold (metallic mold for considering it as a final prism) must produce the metallic mold for fabricating an insertion member independently. Expense starts very much the condition whose plan for exchanging the molding die for an insertion and this metallic mold increases and for which the making machine for insert molding and one making machine for 2 color fabrication are needed that the time and effort which moves and changes an insertion to a book type increases. This invention is made in view of the problem of the above-mentioned Prior art, and common injection molding machines other than an insert molding machine or the making machine for 2 color fabrication are used for it, and it is cheap expense. And there is no poor forming, such as HIKE and a flow mark, and it aims at offering the prism molding die in which cool time is still shorter.

[0004]

[Means for solving problem] [invention concerning Claim 1] in order to attain the above-mentioned purpose The fixed side cavity and movable side cavity which form a desired prism and isomorphous-like space by making each counter, A plane part which becomes smaller than the prism form for which the space formed by making it counter with either a fixed side cavity or a movable side cavity asks, It **** and a fixed side cavity or a movable side cavity, and a plane part are characterized by the ability to exchange by sliding within a metallic mold. Invention concerning Claim 2 is a prism molding die which forms the space for fabricating a desired prism by countering each other in the fixed side cavity arranged to the fixed side template, and the movable side cavity arranged to the movable side template. In the prism molding die which obtains a desired prism by attaching to an injection molding machine and filling up the above-mentioned space with melting resin It is arranged free [a slide into the slot prepared along one of the P.L. sides of a fixed side template or a movable side template]. The insert which prepared the plane part which covers another cavity by slide while preparing the movable side cavity, when it prepared for the case where it prepares for a fixed side template at a fixed side and a movable side template, It is characterized by having the control device which controls the drive which connected the insert so that an insert might slide along the above-mentioned slot, the heater which is in a movable side template and a fixed side metallic mold, and was embedded near the passage of melting resin, the above-mentioned drive and a heater, and a making machine. Invention concerning Claim 3 is a prism molding die which forms the space for fabricating a desired prism by countering each other in the fixed side cavity arranged to the fixed side template, and the movable side cavity arranged to the movable side template. In the prism molding die which obtains a desired prism by attaching to an injection molding machine and filling up the above-mentioned space with melting resin The insert which has a movable side cavity when it prepares for the case where it has been arranged free [a slide into the slot prepared along one of the P.L. sides of a fixed side template or a movable

side template], and prepares for a fixed side template at a fixed side and a movable side template, While having the plane part which will accept it with an insert in the side which counters, and covers a cavity The dummy insert with which the slot established in the template of the side equipped with the above-mentioned insert along the opening-and-closing direction of a movable side template was equipped free [a slide], The drive which connected the insert so that an insert might slide along the above-mentioned slot, The prism molding die characterized by having the control device which controls the drive which connected the dummy insert so that a dummy insert might slide along the above-mentioned slot, the heater which is in a movable side template and a fixed side metallic mold, and was embedded near the passage of melting resin, the above-mentioned drive and a heater, and a making machine.

[0005] (OPERATION) The prism molding die concerning Claim 1 divides one prism into two, fabricates it in 2 steps, ejects melting resin to the space formed of the cavity and plane part of either a fixed side cavity or the movable side cavities, performs primary fabrication, exchanges another cavity and plane part which are not used for primary fabrication among the fixed side cavity or the movable side cavity leaving primary fabrication objects to the cavity used for primary fabrication after predetermined time passed and melting resin cooled and solidified, performs secondary fabrication to one to the primary above-mentioned fabrication objects, and fabricates a last-shaped prism. The prism molding die concerning Claim 2 is what divides one prism into two and is fabricated in 2 steps. Eject melting resin to the space formed of an insert, the cavity formed in the template which counters, and the plane part of an insert, and primary fabrication is performed. After predetermined time passes and melting resin cools and solidifies (a runner and melting resin in a spool maintain a molten state by work of a heater.) A plane part and a cavity are changed by opening a model very slightly and sliding an insert with a drive, a model is closed again, secondary fabrication is performed in an insert, the cavity formed in the template which counters, and the cavity of an insert, and a desired prism is obtained. The prism molding die concerning Claim 3 is what divides one prism into two and is fabricated in 2 steps. Eject melting resin to the space formed of an insert, the cavity formed in the template which counters, and the plane part of a dummy insert, and primary fabrication is performed. After predetermined time passes and melting resin cools and solidifies (a runner and melting resin in a spool maintain a molten state by work of a heater.) With a drive, a dummy insert and an insert are changed, secondary fabrication is performed in an insert, the cavity formed in the template which counters, and the cavity of an insert, and a desired prism is obtained.

[0006]

[Mode for carrying out the invention]

(Form 1 of operation) The details of the form of this operation are explained using drawing 1 and drawing 2 . The prism fabricated in the form of this operation is a pen TADAH prism.

drawing 1 shows the state of fabricating the remaining one side of the prism in which the state of fabricating only one side of the prism which divides two and is fabricated is shown and which divides a sectional view and drawing 2 two and is fabricated in part while showing the important section of the metallic mold concerning the form of this operation -- it is a sectional view in part. The prism molding die 1 in the form of this operation consists of a fixed side metallic mold 2 and a movable side metallic mold 3 as shown in drawing 1 .

[0007] Since it fixes to the fixed side platen of the injection molding machine which carried out the illustration abbreviation, the fixed side tie-down plate 4 which constitutes the fixed side metallic mold 2 is a thing, and it is fixing the sprue bush 6 where the nozzle of the fixed side template 5 and an injection molding machine contacts. The fixed side cavity 5a is directly formed in the fixed side template 5, the form was made into the form which reversed the portion which serves as a roof form by the slope which is an optical reflective surface of a pen TADAHHA prism, and the capacity was made into the capacity equivalent to the volume of the abbreviation half of a desired prism. On the other hand, it is because the movable side tie-down plate 7 which constitutes the movable side metallic mold 3 is fixed to the movable side platen of an injection molding machine, and the movable side template 9 is fixed with the bolt which carried out the illustration abbreviation through the spacer block 8. Between the movable side template 9 and the **** side tie-down plate 7, it has the ejector plate upper and lower sides 11 and 12 which pinched the ejector pin 10 which slides on the inside of the movable side template 9. These ejector plate upper and lower sides 11 and 12 move to figure Nakagami down by the motion of the ejector rod of an injection molding machine which carried out the illustration abbreviation.

[0008] Moreover, the oblong slot 9a is formed in the P.L. (parting line) side side (fixed side template 5 side) of the movable side template 9 along the P.L. side, and this slot 9a is equipped with the movable side insert 13 which can be freely slid to the horizontal direction in a figure along Slot 9a. This movable side insert 13 is connected at the tip of the axis 14a of the oil pressure cylinder 14 as a drive fixed to the perimeter of the movable side template 9 with the bolt which carried out the illustration abbreviation. The oil pressure cylinder 14 is connected to the making machine core tractor (illustration abbreviation) controlled by the control device 15. [the movable side cavity 13a formed in the movable side insert 13] It shall be considered as the form which reversed the form of portions other than the portion which serves as a roof form by the slope which is an optical reflective surface of a pen TADAHHA prism, and the capacity shall be equivalent to the volume which deducted the volume equivalent to the capacity of the fixed side cavity 5a from the volume of the desired prism. Therefore, the space which fabricates a prism will be formed by making the movable side cavity 13a and the above-mentioned fixed side cavity 5a counter.

[0009] [moreover, the movable side cavity 13a and the above-mentioned fixed side cavity 5a]

It is open for free passage for the nozzle of the injection molding machine which carried out the illustration abbreviation through the gate 16 which dug deep and formed both the fixed side template 5 and the movable side insert 13, the runner 17 who dug deep and formed both the fixed side template 5 and the movable side template 9, and the spool 18 of a sprue bush 6. These runners 17 and spool 18 are the passages of melting resin, a runner 17 and the circumference of the spool 18 are equipped with the heater 19 for maintaining the molten state of resin in a runner 17 and spool 18, and this heater 19 is electrically connected to the above-mentioned control device 15.

[0010] By the way, are on the left-hand side of the above-mentioned slot 9a, and [the P.L. side side (fixed side template 5 side) of the movable side template 9] The longwise slot 9b formed so that Slot 9a might be followed is formed along the opening-and-closing direction of the movable side template 9, and this slot 9b is equipped with the dummy insert 20 which can be freely slid to figure Nakagami down along Slot 9b. The upper end face (field by the side of the fixed side cavity 5a) of this dummy insert 20 is a field smooth as a plane part 20a, and that lower end is connected at the tip of the axis 21a of the oil pressure cylinder 21 which is a drive. Having the oil pressure cylinder 21 in the hole 9c prepared down the above-mentioned slot 9b, the axis 21a moves up and down with the pressure of the operation oil supplied from the making machine core tractor (illustration abbreviation) controlled by the control device 15. In addition, the above-mentioned control device 15 controls movable [of eye a mold clamp of a making machine, and a core tractor], an injection of resin, and a start/end of heating at a heater 19 in total.

[0011] Next, the molding procedure of the prism using the above-mentioned prism molding die 1 is explained. First, while attaching this metallic mold 1 to the injection molding machine which carried out the illustration abbreviation and starting heating of a heater 19 with the control device 15, a molding composition is fed into an injection molding machine, and it plasticizes. And from the control device 15, send instructions and the movable side insert 13 is retreated at a figure Nakamigi end along Slot 9a in the oil pressure cylinder 14 as shown in drawing 1 . The dummy insert 20 is gone up along Slot 9b in the position whose tip side (left end side in a figure) of the movable side insert 13 corresponded with the right-hand side end face of Slot 9b in the oil pressure cylinder 21, and the plane part 20a is coincided with a P.L. side. Only the fixed side cavity 5a is open for free passage with a runner 17 now.

[0012] Next, instructions are sent so that a high-pressure mold clamp may be performed to a making machine from a control device, melting resin is ejected in the fixed side cavity 13a, and primary fabrication is performed, and this melting resin is cooled, it solidifies, and primary fabrication objects are acquired so that the fixed side cavity 5a may be covered by the plane part 20a. Since the movable side cavity 13a is not open for free passage with a runner 17 at this time, it does not fill up with resin. Moreover, resin in spool 18 and a runner 17 maintains a

molten state by work of a heater 19. After resin in the fixed side cavity 5a fully solidifies, in order to change into the state which can slide the movable side insert 13, the instructions for which a high-pressure mold clamp is canceled of a control device to a making machine are sent, and between the movable side template 9 and the fixed side templates 5 is opened about 0.03mm. At this time, since it is 0.03mm, melting resin does not flow out from a P.L. side. The dummy insert 20 is descended in the oil pressure cylinder 21 as oil is sent from a making machine core tractor after canceling a high-pressure mold clamp and it is shown in drawing 2 . If the plane part 20a arrives at the bottom of Slot 9a, in the oil pressure cylinder 14, the movable side insert 13 is slid leftward in a figure, and it is in agreement in the position of the fixed side cavity 5a, and the position of the movable side cavity 13a.

[0013] And a high-pressure mold clamp is carried out again, melting resin is ejected into the portion 13a which had not been fabricated at the time of primary fabrication, i.e., a movable side cavity, leaving primary fabrication objects to the fixed side cavity 5a, and secondary fabrication is performed. It joins to primary fabrication objects which it left to the fixed side cavity, and secondary fabrication objects newly fabricated by this secondary fabrication are united with the high temperature of melting resin at the time of secondary fabrication, and pressure. Primary fabrication objects and secondary fabrication objects become one prism by this. After the end of secondary fabrication, instructions are sent so that the heater 19 may be turned off from the control device 15. The movable side cavity 13a, spool 18, and melting resin in a runner 17 are cooled. After it solidifies and these melting resin solidifies enough, a high-pressure mold clamp is canceled, a model is opened, the ejector board upper and lower sides 11 and 12 are moved forward (it goes up in drawing 2), it is projecting spool 18 by the ejector pin 10, and a prism is projected from the movable side cavity 13a. Fabrication of 1 cycle is completed now.

[0014] And after taking out a prism as a cast, while starting heating at a heater 19 again, the dummy insert 20 and the movable side insert 13 are returned to the state of drawing 1 , the above-mentioned order is repeated, and continuous molding of the prism of the same form is performed. Since according to the form of this operation a cavity with big capacity is divided, it is separately filled up with resin, respectively and it unifies simultaneously, capacity of each cavity can be made small. Therefore, since cool time of each cavity can be shortened, the whole cool time can be shortened as compared with the case where the prism of this capacity is fabricated at once. Moreover, it is hard to generate HIKE and a weld line, and since a flow mark is not produced even if it carries out injection speed early, it high-fills up with a part for the DAHA corner of a prism. Furthermore, since two or more models are not needed, model expense becomes inexpensive.

[0015] In addition, although the movable side metallic mold was equipped with the dummy insert and the dummy insert, and the insert (movable side insert) to exchange with the form of

this operation, you may arrange these to a fixed side (a dummy insert and the insert to exchange will be called a fixed side insert). In this case, since it can have an ejector pin so that it may project to a fixed side cavity, it can have model composition which can project the prism which fabrication ended by a direct ejector pin.

[0016] (Form 2 of operation) The form of this operation is explained using drawing 3 - drawing 8 . The prism molding die concerning the form of this operation is for fabricating a DAHAPU rhythm. The sectional view of the whole prism molding die which requires drawing 3 for the form of this operation, the figure where drawing 4 saw the A-A section of drawing 3 from the direction of an arrow, the figure and drawing 8 which looked at the movable side metallic mold at the time of the figure and drawing 6 which looked at the movable side metallic mold at the time of drawing 5 performing primary fabrication from the P.L. side performing the B-B sectional view (only important section) of drawing 5 , and drawing 7 performing secondary fabrication from the P.L. side -- the C-C sectional view (only important section) of drawing 7 -- it comes out.

[0017] The prism molding die 22 in the form of this operation consists of a fixed side metallic mold 23 and a movable side metallic mold 24 as shown in drawing 3 . Since it fixes to the fixed side platen of the injection molding machine which carried out the illustration abbreviation, the fixed side tie-down plate 25 which constitutes one fixed side metallic mold 23 is a thing, and it is fixing the sprue bush 27 where the nozzle of the fixed side template 26 and a making machine contacts. The fixed side cavity 26a is directly formed in the P.L. side side of the fixed side template 26, the form was made into the form which reversed the portion which serves as a roof form by the slope which is an optical reflective surface of a DAHAPU rhythm, and the capacity was made into the capacity equivalent to the abbreviation half of the volume of a desired prism. The movable side tie-down plate 28 which constitutes another movable side metallic mold 24 is because it fixes to the movable side platen of an injection molding machine, and is fixed with the bolt for which the spacer block 29 and the movable side template 30 were fixed and which won popularity and carried out the illustration abbreviation of the board 31. Between the receptacle board 31 and the **** side tie-down plate 28, it has the ejector plate upper and lower sides 33 and 34 which pinched the ejector pin 32 which slides on the inside of the receptacle board 31 and the movable side template 30. These ejector plate upper and lower sides 33 and 34 move to figure Nakagami down by the motion of the ejector rod of an injection molding machine which carried out the illustration abbreviation.

[0018] Moreover, Slot 30a is established in the P.L. side side of the above-mentioned movable side template 30 along the P.L. side, and this slot 30a is equipped with the movable side insert 35 which can be freely slid to the horizontal direction in drawing 4 (it is perpendicularly to space in drawing 3) along Slot 30a as shown in drawing 4 . The movable side insert 35 is connected at the tip of the axis 36a of the oil pressure cylinder 36 as a drive fixed to the

movable side template 30 with the bolt which carried out the illustration abbreviation. It is the form which reversed the form of portions other than the portion which serves as a roof form by the slope which is an optical reflective surface of a DAHAPU rhythm in the P.L. side side of the movable side insert 35. That capacity has formed the movable side cavity 35a which is the capacity which deducted the capacity of the above-mentioned fixed side cavity 26a from the capacity equivalent to the desired prism whole product, and the plane part 35b with the smooth surface is formed in the right-hand side [of this fixed side cavity] 36, i.e., oil pressure cylinder, side. The oil pressure cylinder 36 is connected to the control device 15 controlled to carry out the specified quantity slide of the movable side insert 35 in the horizontal direction in drawing 4 .

[0019] It has connected with the control part of the injection molding machine which carried out the illustration abbreviation, and the control device 15 is interlocked with a motion of a making machine, and controls the slide direction and quantity of the movable side insert 35 in the oil pressure cylinder 36. from the place where the position of range which the movable side insert 35 slides of the fixed side cavity 26a and the movable side cavity 35a corresponds completely -- this -- to the place in which two cavities 26a and 35a do not interfere at all mutually That is, it has carried out to to the position where the fixed side cavity 26a and the plane part 35b counter. Moreover, the gate 37 which dug deep and formed the fixed side template 26, the fixed side insert 35, and the movable side insert 35 as each above-mentioned cavities 26a and 35a were shown in drawing 3 , It is open for free passage for the nozzle of the injection molding machine which carried out the illustration abbreviation through the runner 38 who dug deep and formed the fixed side template 26 and the movable side template 30, and the spool 39 of a sprue bush. The above-mentioned runner 38 and the circumference of the spool 39 are equipped with the heater 40, and this heater 40 is connected to the above-mentioned control device 15 (illustration abbreviation).

[0020] Next, the forming order of the prism using the prism molding die 22 which consists of the above-mentioned composition is explained using drawing 3 - drawing 8 . First, it attaches to the injection molding machine which carried out the illustration abbreviation of the prism molding die 22 shown in drawing 3 , and forming preparations of an injection of the temperature control of a metallic mold and a molding composition, plasticization, etc. are made. The temperature of a heater 40 is set as the grade which can maintain the molten state of a molding composition with the control device 15. The movable side insert 35 is slid leftward in a figure along Slot 30a as instructions are issued after the completion of preparation so that Axis 36a may be moved forward from the control device 15 to the oil pressure cylinder 36, and shown in drawing 5 and drawing 6 . By this, since the gate 37 of a movable side insert shifts rather than a runner 38, it will be in the state where the runner 38 and the movable side cavity 35a are not open for free passage. Moreover, since the plane part 35b countered with the fixed

side cavity 26a and the fixed side cavity 26a is covered as shown in drawing 6 , the movable side cavity 35a and the fixed side cavity 26a are not open for free passage.

[0021] Next, after performing measurement and a high-pressure mold clamp, melting resin is ejected in the fixed side cavity 26a, and primary fabrication is performed, and only melting resin in the fixed side cavity 26a is cooled, it solidifies, and primary fabrication objects are acquired. Since the movable side cavity 35a is not open for free passage with a runner 38 at this time, melting resin does not flow into the movable side cavity 35a. Moreover, also after resin in the fixed side cavity 26a cools and solidifies, resin in the spool 39 shown in drawing 3 and a runner 38 is maintaining the molten state by work of a heater 40. After resin in the movable side cavity 35a carries out cooling solidification, instructions are issued so that a high-pressure mold clamp may be canceled from the control device 15. This opens the movable side template 30 and the fixed side template 26 about 0.03mm. Here, when a high-pressure mold clamp is canceled, naturally a runner 38 also opens, but resin does not flow out in an about 0.03mm crevice.

[0022] And oil is sent to the oil pressure cylinder 36 from the making machine core tractor which carried out the illustration abbreviation, and Axis 36a is moved rightward until the gate 37 and runner 38 of the movable side insert 35 are in agreement, as shown in drawing 7 . Of this, as shown in drawing 8 , the position of the movable side cavity 35a and the position of the fixed side cavity 26a are in agreement, and the cavity for fabricating a desired prism is formed, at the same time a runner 38 and the movable side cavity 35a are open for free passage. Then, a high-pressure mold clamp is carried out again, melting resin is ejected in the movable side cavity 35a, leaving primary fabrication objects to the fixed side cavity 26a, and secondary fabrication is performed. By this secondary fabrication, it joins mutually with the high temperature of melting resin at the time of secondary fabrication, and pressure, and primary fabrication objects which it left to the fixed side cavity 26a, and secondary newly fabricated fabrication objects are united, and become one prism. After the end of secondary fabrication, instructions are issued so that heating at a heater 40 may be ended from the control device 15 shown in drawing 3 , and spool 39 and resin in the molten state in a runner 38 are cooled, and it solidifies.

[0023] After the prism in spool 39, a runner 38, and the movable side cavity 35a fully cools and solidifies, a high-pressure mold clamp is canceled, the movable side metallic mold 30 and the fixed side metallic mold 26 are opened, and a prism is pushed out and taken out from Cavity 35a by the ejector pin 32. While issuing instructions so that heating at a heater 40 may be again started from the control device 15 after taking out a prism From the core tractor which carried out the illustration abbreviation, oil is sent to the oil pressure cylinder 36, the movable side insert 35 is slid to the position of drawing 5 and drawing 6 , a high-pressure mold clamp and measurement are performed, and continuous molding of the prism is carried out in the

same order as the above. Since the movable side cavity and the plane part were prepared in the movable side insert according to the form of this operation, there are few moving parts than the form 1 of the above-mentioned implementation. Therefore, as compared with the form 1 of operation, the composition of a metallic mold is simple and becomes inexpensive. Other effects are the same as the form 1 of the above-mentioned implementation.

[0024] (Form 3 of operation) The details of the form of this operation are explained using drawing 9 and drawing 10. the figure in which drawing 9's being the important section sectional view of the metallic mold concerning the form of this operation, and showing the state of primary fabrication, and the figure in which drawing 10's being the important section sectional view of the metallic mold concerning the form of this operation, and showing the state of secondary fabrication -- it comes out. With the form of this operation, as shown in drawing 9, the movable side cavity 35a was formed in oil pressure cylinder side 36 of the movable side insert 35. Since other composition is the same as that of the form 2 of the above-mentioned implementation, the explanation is omitted. According to the form of this operation, the axis 36a of the oil pressure cylinder 36 is moved forward, and it becomes secondary fabrication as the axis 36a of the oil pressure cylinder 36 is retreated as shown in drawing 9, and shown in primary fabrication and drawing 10.

[0025] Moreover, in the form of this operation, when sliding the movable side insert 35 after primary fabrication, the interval of the movable side template 30 and the fixed side template 26 was 0.1mm. In an about 0.1mm crevice, resin does not flow out like the form 2 of the above-mentioned implementation. Since other operations are the same as that of the form 2 of the above-mentioned implementation, the explanation is omitted. According to the form of this operation, the sliding resistance at the time of writing the interval of a movable side template and a fixed side template with 0.1mm, and a movable side insert sliding is small. Therefore, as compared with the form 2 of the above-mentioned implementation, it can fully respond also in a small oil pressure cylinder. Others can acquire the same effect as the form 2 of the above-mentioned implementation.

[0026] (Form 4 of operation) The details of the form of this operation are explained using drawing 11 and drawing 12. the figure in which drawing 11's being the important section sectional view of the metallic mold concerning the form of this operation, and showing the state of primary fabrication, and the figure in which drawing 12's being the important section sectional view of the metallic mold concerning the form of this operation, and showing the state of secondary fabrication -- it comes out. The movable side insert 35 is fixed to one end of the rack 44 which gears with the pinion 43 attached to the axis of rotation 42 of the motor 41 as a drive fixed to the perimeter of the movable side template 26 with the bolt of the illustration abbreviation as shown in drawing 11 and drawing 12. The motor 41 is electrically connected to the control device 15, and the movable side insert 35 carries out a required quantity slide in

the horizontal direction in a figure because the control device 15 controls the hand of cut of a motor 41, and number of rotations. Since other composition is the same as that of the form 2 of the above-mentioned implementation, explanation is omitted. Moreover, it is the same as that of the form 2 of the above-mentioned implementation also about an operation and an effect.

[0027] (Form 5 of operation) The form of this operation is explained using drawing 13 and drawing 14. the sectional view of the whole metallic mold which requires drawing 13 for the form of this operation, and the figure where drawing 14 saw the D-D section of drawing 13 from the direction of an arrow -- it comes out. The form of this operation is the same as the form 4 of the above-mentioned implementation except the point which equipped the fixed side template 26 with the fixed side insert 45 which can be slid freely like the movable side insert 35 in the form 2 of the above-mentioned implementation. Slot 26b is formed in the P.L. side side of the fixed side template 26, and this slot 26b is equipped with the fixed side insert 45, enabling a free slide as shown in drawing 13. The fixed side insert 45 is fixed at the tip of the axis 46a of the oil pressure cylinder 46 as a drive fixed to the fixed side template 26 with the bolt which carried out the illustration abbreviation, as shown in drawing 14. Since other composition is the same as that of the form 2 of the above-mentioned implementation, the explanation is omitted. Moreover, since it is the same as that of the form 2 of the above-mentioned implementation also about an operation of the form of this operation, it omits.

[0028] According to the form of this operation, the forming object main part (the form of this operation prism) itself can be directly pushed out by an ejector pin by having arranged the insert to slide to the fixed side. A prism seems therefore, not to remain in a cavity in the case of extrusion by an ejector pin.

[0029]

[Effect of the Invention] Since the time and effort of a moving substitute of an insertion can be saved for what insert molding is needed and twisted for by the ability diverting general injection molding according to the prism molding die concerning this invention, a prism can be fabricated at cheap expense. Furthermore, cool time becomes short, without poor forming, such as HIKE and a flow mark, occurring, in order to make it thinner than the thickness of the prism of a request of the thickness fabricated to per time.

[Brief Description of the Drawings]

[Drawing 1] while the important section of the metallic mold in the form 1 of operation is shown, the state (primary fabrication) of fabricating one side of the prism which divides two and is fabricated is shown -- it is a sectional view in part.

[Drawing 2] the state (secondary fabrication) of fabricating the remaining one side of the prism

which divides two and is fabricated in the form 1 of operation is shown -- it is a sectional view in part.

[Drawing 3] It is the sectional view of the whole prism molding die in the form 2 of operation.

[Drawing 4] It is the A-A sectional view of drawing 3 .

[Drawing 5] It is the figure which looked at the movable side metallic mold at the time of performing primary fabrication in the form 2 of operation from the P.L. side.

[Drawing 6] It is the B-B sectional view of drawing 5 .

[Drawing 7] It is the figure which looked at the movable side metallic mold at the time of performing secondary fabrication in the form 2 of operation from the P.L. side.

[Drawing 8] It is the C-C sectional view of drawing 7 .

[Drawing 9] It is the important section sectional view of the prism molding die in the form 3 of operation, and is the figure showing the state of primary fabrication.

[Drawing 10] It is the important section sectional view of the prism molding die in the form 3 of operation, and is the figure showing the state of secondary fabrication.

[Drawing 11] It is the important section sectional view of the prism molding die in the form 4 of operation, and is the figure showing the state of primary fabrication.

[Drawing 12] It is the important section sectional view of the prism molding die in the form 4 of operation, and is the figure showing the state of secondary fabrication.

[Drawing 13] It is the sectional view of the whole prism molding die in the form 5 of operation.

[Drawing 14] It is the D-D sectional view of drawing 13 .

[Explanations of letters or numerals]

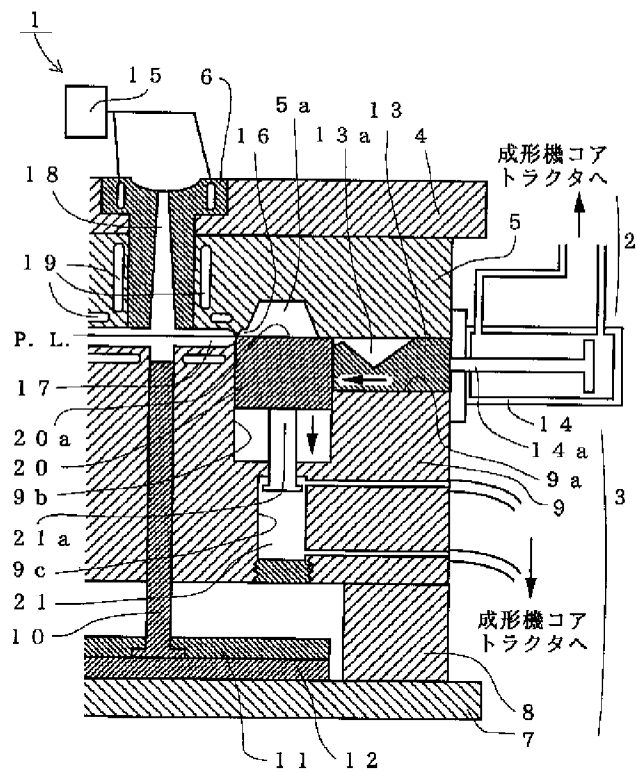
1 22 Prism Molding Die

5a, 26a Fixed side cavity

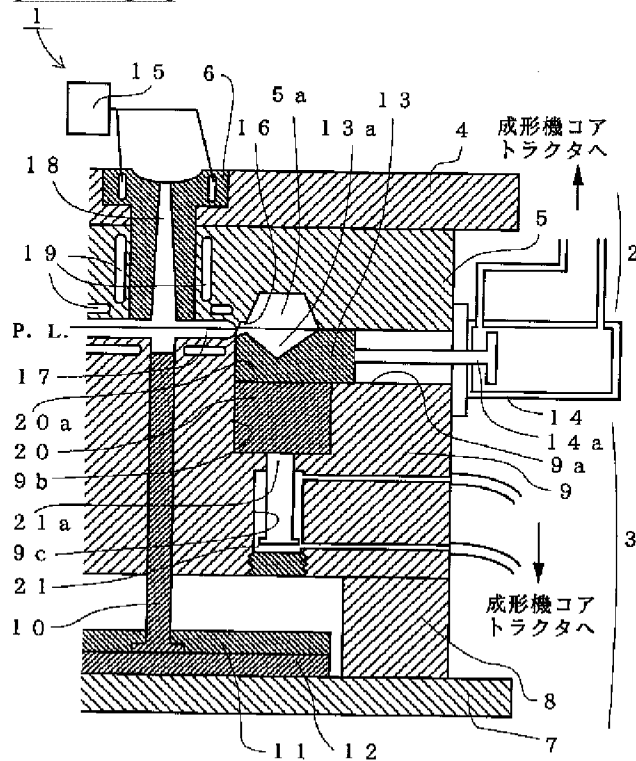
13a, 35a Movable side cavity

20 Dummy Insert

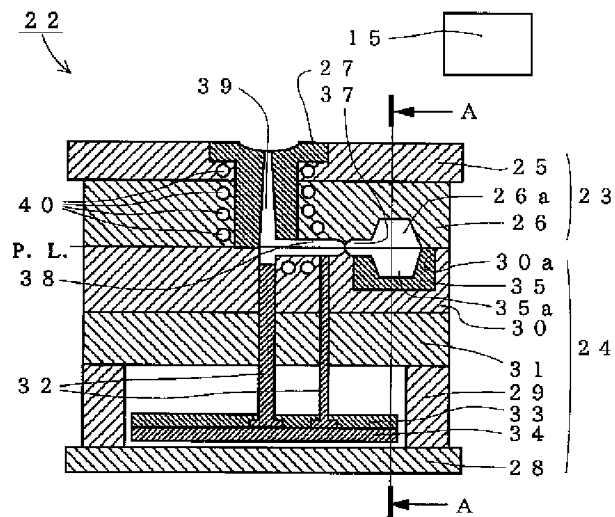
[Drawing 1]



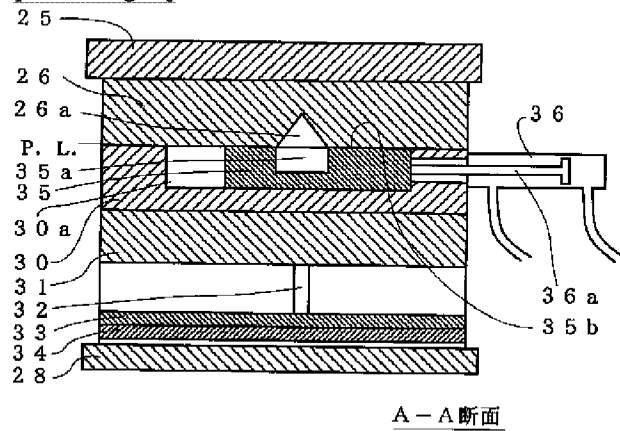
[Drawing 2]



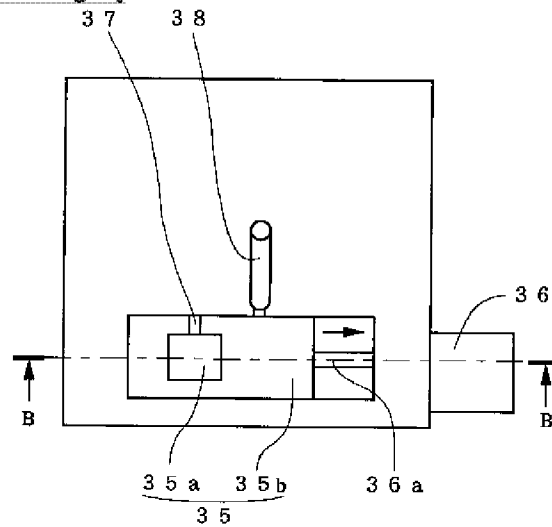
[Drawing 3]



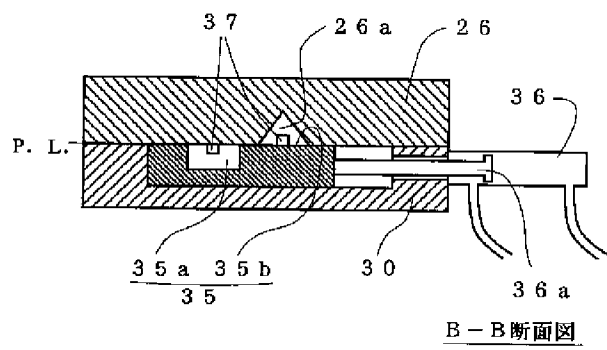
[Drawing 4]



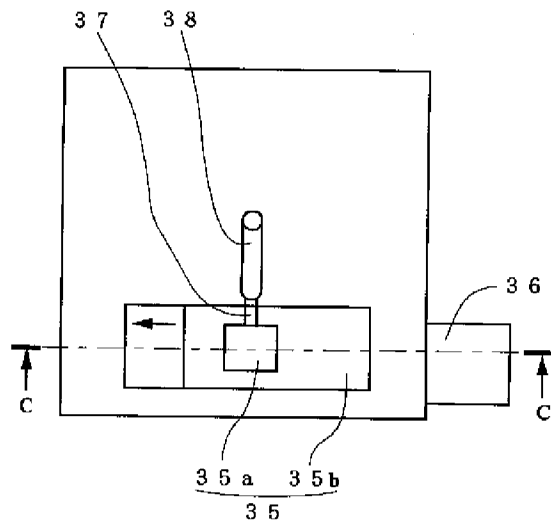
[Drawing 5]



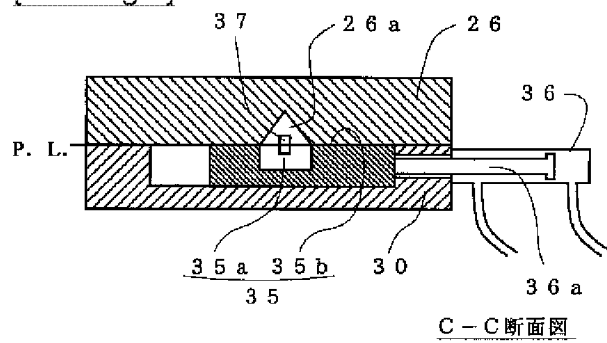
[Drawing 6]



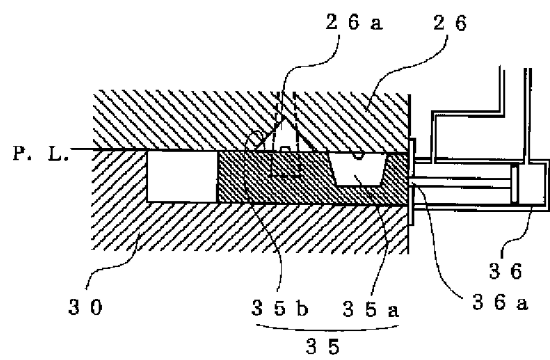
[Drawing 7]



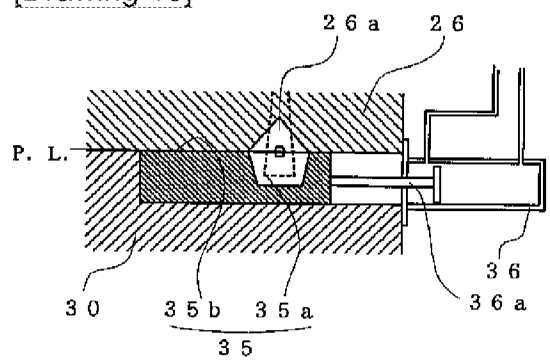
[Drawing 8]



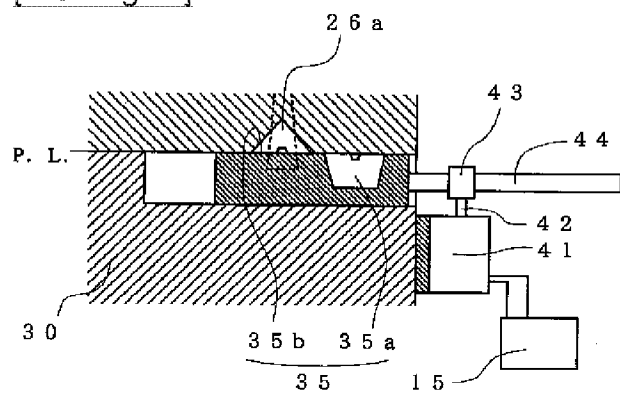
[Drawing 9]



[Drawing 10]



[Drawing 11]



[Drawing 12]

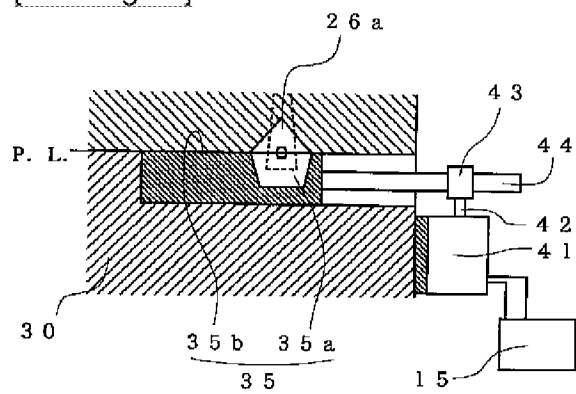


Fig. 2 is a cross-sectional view of a multi-layered structure. The structure consists of several horizontal layers. A central vertical assembly is shown, with a central core (35) and surrounding layers (35a, 30, 31). A horizontal arrow 'D' points to the right at the top, and another 'D' points to the left at the bottom. A bracket on the right side groups several layers together. A label 'P. L.' is on the left side. A small box labeled '1 5' is at the top right.

D-D 断面

http://dossier1.ipdl.inpit.go.jp/cgi-bin/tran_web_cgi_ejje?u=http%3A%2F%2Fdossier1.ipdl... 2/4/2009